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Project – 294 Lygon St Brunswick East
Date – 9.3.22
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ACOUSTIC REPORT INFORMATION SHEET

Project
294 Lygon St Brunswick East

Prepared for
Scott Didier

Prepared by
Rohan Barnes from Waveform Acoustics

REVISIONS REGISTER	Issue Date
Draft Acoustic Report	5.3.22
Acoustic Report Rev A	9.3.22

DOCUMENT REGISTER	Issue Date
Letter of engagement	2.3.22

1.0 – EXECUTIVE SUMMARY

Waveform Acoustics has been engaged by Scott Didier to provide an updated Acoustic Report in relation to Music and Entertainment noise generated at 294 Lygon St Brunswick East.

In particular the report should address whether the additional noise mitigation measures have enabled the venue to now comply with the EPA Noise Protocol 1826.4 during the evening and night period.

Testing was undertaken of Saturday 5th of March from 8pm until 1.30am within the following apartments

- *Apartment 108 (directly above the venue)*
- *Apartment 306 (above the venue of the third floor)*
- *Apartment 104 – After meeting the resident it was determined that the noise intrusion is not into the apartment but can be heard in the foyer – so no additional testing as undertaken here)*

On the evening there were three brackets of music
Bracket 1 - during the evening period – music was played around 85-90 dB(A) measured at 1m (with stomp pedal)
Bracket 2 – during the night period – music was 90-95 dB (A) measured at 1m (no stomp pedal)
Bracket 3 – during night period – music was 95-98 dB(A) measured at 1m (with stomp pedal)

After taking measurements at apartments 306 and 108 it is evident that then noise levels currently exceed the levels required by the EPA noise protocol during the night period. During the evening period compliance was achieved in apartment 306. In apartment 108 compliance was achieved using the Bracket 1 levels, but not using Bracket 2 or 3 levels.

As such we have made further recommendations on how the bar can achieve compliance.

Best Regards,

Rohan Barnes MAAS
Principal Consultant

2.0 – LEGISLATION AND GUIDELINES

In the preparation of the report the following legislation and guidelines were used:

EPA publication 1826.4: 'Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues' (Noise Protocol).*
This publication provides a protocol for the purpose of determining noise limits for new and existing commercial, industrial and trade premises and entertainment venues as defined by the Regulations. It sets the methodology for assessing the effective noise level to determine unreasonable noise under Regulations 118, 125 and 130. The measurement procedures of this Noise Protocol are also used to determine aggravated noise under Regulations 121, 127 and 131.

Environment Protection Regulations 2021
The objectives of these Regulations are to further the purposes of, and give effect to, the Environment Protection Act 2017 by imposing obligations in relation to environmental protection in Victoria.

State Environmental Protection General Environmental Duty 2021
New environment protection laws will mean that anyone engaging in an activity posing a risk of harm to human health and the environment, from pollution or waste, must manage that risk to prevent harm as far as reasonably practicable. This general environmental duty applies to all Victorians. It means you will need to proactively assess and manage the risks of harm from your activities. Eliminating or reducing risk is important because industry activities could impact - Noise – affecting people's sleep; communication, cognition and learning; domestic or recreational activities; tranquillity and enjoyment inside and outside

*Please note that the permit Condition 7 requires SEPP N-2 compliance, this has been superseded by the new 1824.6 protocols from the EPA.

3.0 – ACOUSTIC ASSESSMENT

A Svantek 979 sound level meter recorded the environmental noise data calibrated prior to and after measurement. This equipment was used to take attended measurements at various locations.

Details of the instrumentation

equipment register	s/n	calibration date
ARL Ngara Noise Logger (BRUCE)	878153	due 2.11.22
ARL Ngara Noise Logger (Harry)	878120	due 2.11.22
SV 33A Calibrator	73304	due 28.7.22
SVANTEK 979	69424	due 28.7.22

Details of Testing

Date and Time	**Location**	**Atmospheric**
5.3.22	Various attended measurements	*Conditions according to the BOM*[1]

Atmospheric

No rain or strong winds were detected during testing, ideal conditions for noise data measurement.

[1] http://www.bom.gov.au/climate/dwo/202112/html/IDCJDW3033.202112.shtml

3.1 – 1826.4 NOISE PROTOCOL

ENTERTAINMENT AND MUSIC ACTIVITIES

Indoor Measurements:

(105) The measurement point must be located within a noise sensitive area or at an alternative assessment location.

(106) Where the measurement is to be made in a noise sensitive area, the measurement point must be located outdoors near a sensitive room unless –
a. For indoor entertainment venues: i. the main transmission path of the music noise entering the sensitive room consists of a floor, ceiling or wall with no openings;

ii. an outdoor measurement does not represent the noise exposure within the sensitive room;

As such we set up a Noise logger in each apartment – Apartment 108 and 306
Attended measurements were also taken at various times during the evening and night period to correlate the data within the apartments as well as in the venue while the Pianos were playing.

The limits have been set out in table 1 below:

TABLE 1: EPA 1826.4 Determined noise limits for entertainment & music activities

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz) 63	125	250	500	1k	2k	4k	A Scale
DAY PERIOD (0900-1800)	L_{A90} + 5dB(A)								***N/A***
EVENING PERIOD (1800-2200 hours)	L_{A90} + 5dB(A)								*25*
BASE NOISE LIMIT* (regulation 125)									***32****
NIGHT PERIOD APP 108 (22.00 - 0900 hours)	L_{OCT90} + 8dB	**43**	**34**	**30**	**26**	**21**	**20**	**21**	
BASE NOISE LIMIT** (regulation 125)		40	30	20	20	15	10	10	
NIGHT PERIOD APP 306 (22.00 - 0900 hours)		33	27	**25**	**22**	**19**	**19**	**21**	
BASE NOISE LIMIT** (regulation 125)		**40**	**30**	20	20	15	10	10	

Table 2 describes the external noise limits set in the EPA 1826.4 Noise Protocol in relation to noise associated with indoor entertainment, specifically music and the activities which may be involved.

*For the purposes of subregulation (1)(a), the lowest decibel value that may be set as the noise limit (the ***base noise limit***) is—(a) for the day and evening period, 32dB(A) **SET OUT IN BOLD IN THE TABLE ABOVE**

For the purposes of subregulation (1)(a), the lowest decibel value that may be set as the noise limit (the ***base noise limit*) is - (b) for the night period, the base noise limit corresponding to the relevant frequency **SET OUT IN BOLD IN THE TABLE ABOVE**

Measured Results – Apartment 108

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz) 63	125	250	500	1k	2k	4k	A Scale
EVENING PERIOD (Bracket 1 8.45pm)	L_{Aeq}								***31***
	Limit								***32***
NIGHT PERIOD (Bracket 2 10.30pm) No stomp pedal	L_{OCT10}	47	38	34	27	17	14	13	
	Limit	43	34	30	26	21	20	21	
NIGHT PERIOD (Bracket 3 11.45pm) With stomp pedal	L_{OCT10}	49	46	45	39	19	13	13	
	Limit	43	34	30	26	21	20	21	

Notes:

1. Measurements were taken in the rear bedroom that was not exposed road, tram or pedestrian noise.
2. Levels in red are above the noise protocol limits, levels in green are within the limits.

Measured Results – Apartment 306

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz) 63	125	250	500	1k	2k	4k	A Scale
EVENING PERIOD (Bracket 1 8.45pm)	L_{Aeq}								***22***
	Limit								***32***
NIGHT PERIOD (Bracket 2 10.30pm) No stomp pedal	L_{OCT10}	41	31	27	23	14	14	14	
	Limit	40	30	25	22	19	19	21	
NIGHT PERIOD (Bracket 3 11.45pm) With stomp pedal	L_{OCT10}	41	35	32	27	17	16	16	
	Limit	40	30	25	22	19	19	21	

Notes:

1. Measurements were taken in the rear bedroom that was not exposed road, tram or pedestrian noise.
2. Levels in red are above the noise protocol limits, levels in green are within the limits.

4.0 – ADDITIONAL WORKS UNDERTAKEN

1. Speakers
    a. Speakers have been relocated to the floor rather than on the truss.

2. Additional ceiling insulation
    a. We understand that additional ceiling insulation has been placed inside some of the accessible ceiling cavity.

3. Staff have been supplied with and instructed in the use of a handheld Sound Level Meter.

5.0 – ADDITIONAL RECOMMENDATIONS

1. Foldback Speakers
    a. After discissions with the artists on Saturday one of the concerns is that the existing fold back speakers (which site on the floor bedside the artists). In order for the artist to hear their mix – these are often played at a level higher than the front of house speakers. As such we recommend one of the following actions
        i. Foldback to be removed and go to an in ear monitoring system only
        ii. Smaller directional foldback speakers are provided for the artist that sit on the piano

2. Music Limiter/reduction in volume
    a. A noise limiter should be installed and calibrated such that the Noise Protocol limits are not exceeded. Such as a CESVA 010 Limiter[2]

[2] https://www.cesva.com/en/products/logger-limiters/lf010/

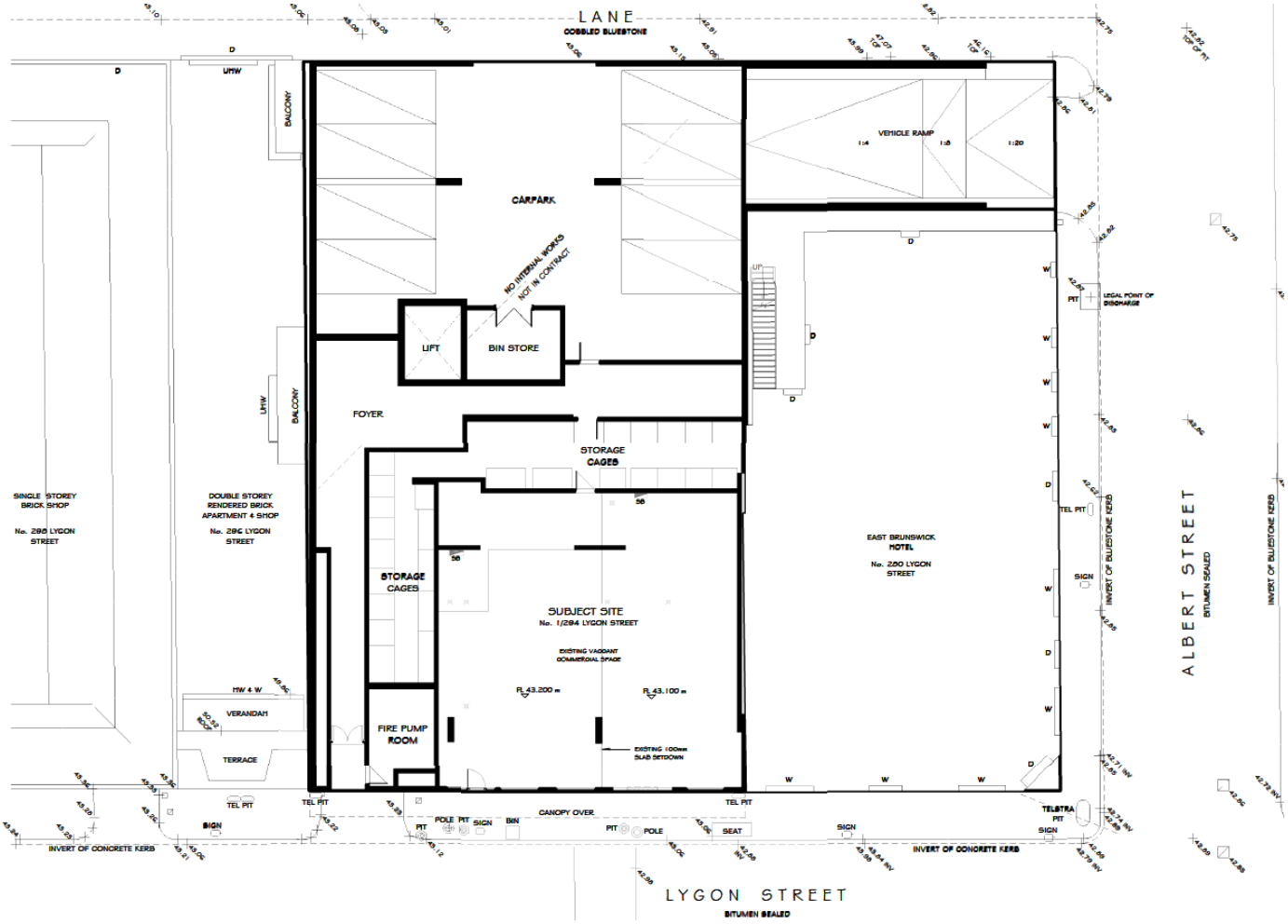
6.0 – SUMMARY

This report gives consideration to acoustic matters associated with the operation of the venue, with recommended acoustic treatments and relevant practices to achieve and or/maintain compliance to the EPA 1826.4 Noise Protocol.

Where clarification is required or the recommended acoustic treatments may be found to impact on other services or statutory requirements, independent advice, as appropriate, is to be sought in respect to any such impact that these acoustic works may have on the building design and construction.

Rohan Barnes
Waveform Acoustics.

APPENDIX 1 – SITE PLAN


LANE
COBBLED BLUESTONE
CARPARK
NO INTERNAL WORKS NOT IN CONTRACT
LIFT
BIN STORE
FOYER
STORAGE CAGES
STORAGE CAGES
SUBJECT SITE
No. 1/294 LYGON STREET
EXISTING VACANT COMMERCIAL SPACE
FL 43.200 m
FL 43.100 m
FIRE PUMP ROOM
EXISTING 100mm SLAB SETDOWN
VERANDAH
TERRACE
BALCONY
BALCONY
VEHICLE RAMP
1:4
1:8
1:20
EAST BRUNSWICK MOTEL
No. 290 LYGON STREET
SINGLE STOREY BRICK SHOP
No. 298 LYGON STREET
DOUBLE STOREY RENDERED BRICK APARTMENT & SHOP
No. 296 LYGON STREET
ALBERT STREET
BITUMEN SEALED
INVERT OF BLUESTONE KERB
LEGAL POINT OF DISCHARGE
CANOPY OVER
POLE
SEAT
BIN
SIGN
TEL PIT
TELSTRA PIT
INVERT OF CONCRETE KERB
LYGON STREET
BITUMEN SEALED


BALCO
FOYER
STORAGE CAGES
WC
BSN
04
WC
BSN
WC.1
UR
UR
05
BSN
BSN
SB
WC.1
SSB
SNK
02
SNK
BRT
BRT
SB
BSN.2
03
WC.2
STORAGE CAGES
SUBJECT SITE
No. 1/294 LYGON STREET
FL 43.200 m
FL 43.400 m
01
PIANO LOCATION
FIRE PUMP ROOM
EXIT
FL 43.200 m
EXIT
EXIT
EXIT
TEL PIT
43.23
43.26
43.22
CANOPY OVER
TEL PIT
POLE
PIT
SIGN
BIN
PIT
POLE
43.06
SEAT

HOW TO TEST FOR NOISE LEVEL COMPLIANCE

As described in EPA Noise Protocol 1826.4 – Commercial Noise Control Music and Equipment

Indoor entertainment venues during operation

(125) For the purpose of determining the effective noise level, the measurement must be made at a time when the greatest intrusion of music noise into a noise sensitive area is likely to occur, and include at least 15 cumulative minutes of music audible at the measurement point. The music noise is measured –

- for the day and evening period using the Fast time weighting and the A-frequency weighting network;
- for the night period using the Fast time weighting, and the linear weighting network.

(126) Where the measurement point is outdoors and is between 1 and 2 metres from an acoustically reflecting surface an adjustment of -2.5 dB must be made to the effective noise level.

(127) Where an indoor measurement is required, in accordance with clause 106 –

a. for the purposes of clause 106(a)(i) the measurement must be made within the sensitive room, with all windows that are not major sound transmission paths closed.
b. for the purposes of clause 106(a)(ii), the measurement must be made within the sensitive room with

i. any openable external window which is a major sound transmission path fully open during the measurement, and

ii. all windows that are not major sound transmission paths closed.

c. for the purposes of clause 106(a)(iii), the measurement must be made within the sensitive room with windows and doors closed.

Proposed indoor entertainment venues:

(128) For proposed indoor entertainment venues or proposed extensions of existing indoor entertainment venues, the effective noise level of music noise must be calculated having regard to –

a. all existing noise sensitive areas or future noise sensitive areas relevant to approved developments;

b. the frequency spectrum of the music noise;

c. the frequency-dependent sound insulation performance of the building within which the venue is located, as relevant;

d. the sound paths to the noise sensitive area and other factors which may affect the propagation of sound; and

e. the cumulative contribution from existing and approved entertainment venues or events affecting noise sensitive areas.

Using an outdoor noise measurement to assess indoor noise levels

(129) An outdoor measurement conducted directly outside a sensitive room can be used to assess the effective noise level indoors when –

a. assessing music noise from a live music entertainment venue and, in application of clause 53.06 of the VPPs, the agent of change is a noise sensitive residential use; or

b. assessing music noise from an outdoor entertainment venue in a noise sensitive area within the Docklands Noise Attenuation Area. (130) For the purpose of clause 129 the indoor effective noise level is determined by subtracting the noise reduction performance of the building envelope from the measured outdoor noise level, having regard to the frequency spectrum of the music noise and the specific acoustic conditions of the sensitive room within which the assessment is conducted.

Measurement Point

(106) Where the measurement is to be made in a noise sensitive area, the measurement point must be located outdoors near a sensitive room unless –

a. For indoor entertainment venues:

i. the main transmission path of the music noise entering the sensitive room consists of a floor, ceiling or wall with no openings;

ii. an outdoor measurement does not represent the noise exposure within the sensitive room; or

iii. the noise sensitive residential use is the agent of change, in application of clause 53.06 of the VPPs.

GLOSSARY OF ACOUSTIC TERMS

L_{Aeq} means the equivalent continuous A-weighted sound pressure level.

L_{A90} means the A-weighted sound pressure level which is exceeded 90% of the time interval considered.

L_{Amax} means the maximum A-weighted sound pressure level during the time interval considered.

L_{Amin} means the minimum A-weighted sound pressure level during the time interval considered.

$L_{OCT\ 10}$ means the 'C' weighted or linear sound pressure level for a specified octave band that is exceeded for 10% of the time.